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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,434	06/06/2005	Tony Day	18133-213 NATL	7437

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EXAMINER
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KOSANOVIC, HELENA

ART UNIT	PAPER NUMBER
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3749

MAIL DATE	DELIVERY MODE
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06/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/509,434

Applicant(s)

DAY, TONY

Examiner

Helena Kosanovic

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 52-78 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 52-78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

Applicant's amendments filed 5/21/2007 are acknowledged.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 52-55, 57 and 74-75 are rejected under 35 U.S.C. 102(b) as being anticipated by Ledbetter 5,826,432.

Ledbetter teaches an invention as claimed: a substantially sealed airtight cabinet (fig. 4) sized for housing vertical array of heat-producing units 162 having an exterior shell 109,190,151, an interior divider wall 160 disposed inside the cabinet wherein the shell and the divider wall provide an equipment chamber 164, 163, with a first plenum 190 and a first inlet 172 defined by the divider as an at least one substantially vertical slot, admitting the air uniformly over a substantial vertical length (fig. 4), **wherein the divider wall is configured such that the first inlet at least partially vertically overlaps with first plenum 190 (fig. 4) ; said shell and divider wall providing a heat exchanger chamber (on the right sight from divider wall 160) in which the heat exchanger 180 is disposed and an equipment chamber (on the left side from dividing wall**

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**160) separate from the heat exchanger chamber (fig. 4);** a first outlet 1 (see paragraph 16 bellow of this Office Action, wherein examiner marked originally not marked first outlet 1 with darkened arrow for clarification) wherein the first plenum communicates with the openings for exhausting substantially all of the flow through the array in substantially horizontal direction (fig. 4); a second plenum 191 defined between the chamber shell and the array for receiving the air that has passed through the array having a second inlet 2 (see paragraph 16 bellow of this Office Action, wherein examiner marked originally not marked second inlet 2 with darkened arrow for clarification) and second outlet 3 (see paragraph 16 bellow of this Office Action wherein examiner marked originally not marked second outlet 3 with darkened arrow for clarification) defined by the divider wall such that the air is directed horizontally (fig. 4) from equipment chamber 164,163; **a heat transfer means 180 (col. 6, ll. 21-25)** disposed in the cabinet for carrying heat away from the cabinet; a door 210 (fig. 7) configured to provide selective access to the heat-producing units based on at least one of an environmental compatibility inside and outside the cabinet (fig. 11A), when the enclosure around the cabinet is closed ( col. 9. ll. 47-63) wherein the doors have independent locks (fig. 11A).

10. Alternatively, claims 52 and 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Ledbetter 5,826,432.

Ledbetter teaches a cabinet as discussed above. However, regarding the limitation of the first plenum, inlet and outlet, Applicant's claims 52 and 56 are also rejected based on the consideration of the first inlet, first air plenum and first air outlet as shown in

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paragraph 16 of this Office Action. First inlet 1 described as first outlet in discussion above, with first air plenum 1' and first outlet 1" wherein the first inlet extends substantially a full vertical extent of at least one of the array and the first plenum.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 58-63 and 68-73 rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842.

Ledbetter teaches an invention as discussed above and further: a mechanism 173,180 for cooling and recirculation of the air between mechanism chamber 191 (fig. 4) and equipment chamber 163,164, wherein the shell and divider wall are configured to direct the air to the mechanism that may have at least one fan (fig. 16) positioned downstream from the fan wherein the flow of the air through equipment chamber 163,164 is substantially parallel to and opposed to the flow of the air through mechanism chamber 191 (fig. 4); at least one door 701a, 701b (fig. 17) in vertical upright wall of the cabinet configured to provide access to mechanism chamber 191 independently of access to equipment chamber 163, 164 since rack is movable and doors are on opposite sides,

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wherein independent doors have independent locks (figs . 17 and 3). Having a heat exchanger positioned upstream of the fan is considered to be a design choice to person of ordinary skill in the art. Applicant has not disclosed that the position of a heat exchanger provides an advantage, is used for particular purpose or solves a stated problem. One of ordinary skill in the art would have expected Applicant's invention to perform equally well with heat exchanger upstream or down stream from said fan as long as heat exchanger performs its function of exchanging the heat.

Ledbetter is silent about fan and heat exchanger that can be arranged in substantially horizontal arrangement and thus providing substantially horizontal airflow.

Fujimoto teaches the cabinet 10 for cooling boards 83 by heat exchanger 54 and couple of fans 35 that provide the circulation of the air in vertical (fig. 4, col. 4, ll. 12-19) or horizontal (fig. 5, col. 4, ll. 41-52) direction depending of position of the fans. Having a circulation in horizontal or vertical plane is specifically discussed in Fujimoto, as being an obvious matter of a design choice and depends of a position of the fans-heat exchanger orientation in order to produce the desired cooling flow. Positioning fan and heat exchanger in vertical position in order to produce circulation in vertical plane, or in a horizontal position in order to produce circulation in a horizontal plane would have been an obvious mater of a design choice (MPEP 2144.04). One ordinary skill in the art would expected Applicant's invention to perform equally well with fan positioned in vertical or horizontal plan (as suggested in Fujimoto), as long as fan and heat exchanger perform the same function of cooling and transferring the air from one place to another.

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12. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view of Jones 6,104,003.

Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about a fan with non-return valve.

Jones teaches electronic cabinet for cooling electronic equipment having a plurality of fans 80 equipped with a back draft damper/non-return valve to prevent recirculation of cooling air through any fans 80 that are not in use (col. 4, ll. 37-47).

It would have been obvious to one of ordinary skill in the art to have Ledbetter in view of Fujimoto cabinet modified with the Jones back draft damper/non-return valve attached to the plurality of fans in order to prevent recirculation of cooling air through any of the fans that are not in use (col. 4, ll. 37-47).

13. Claims 65-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view of Ward 3,387,648.

Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about replicable heat exchanger mounted on runners when withdrawn from the cabinet.

Ward teaches an extendible drawer chases/runner which carries the cooling unit to permit inspection of cooling unit (col. 2, ll. 19-21).

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It would have been obvious to one of ordinary skill in the art to have the Ledbetter in view of Fujimoto invention modified with the Ward chasses/runner unit in order to expect and repair the unit and thus eliminating excess ducts (col. 1, ll. 63-65 and col. 2, ll. 19-21).

14. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view of Rose 6,302,147.

Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about dry-break connectors.

Rose teaches a fluid conduit-coupling device with coupling or uncoupling pairs (col. 1, ll. 5-8) via dry-break connectors (col. 1, ll. 29-31).

It would have been obvious to one of ordinary skill in the art to have the Ledbetter in view of Fujimoto invention modified with the Rose quick-connect/disconnect dry-break connectors in order to provide quick connection and disconnection with substantially no introduction of ambient air into the process fluid (col. 2 ll. 24-27).

15. Claims 76-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter 5,826,432 in view of Fujimoto 5,952,842 and further in view Applicant's admitted Prior art figure 1.

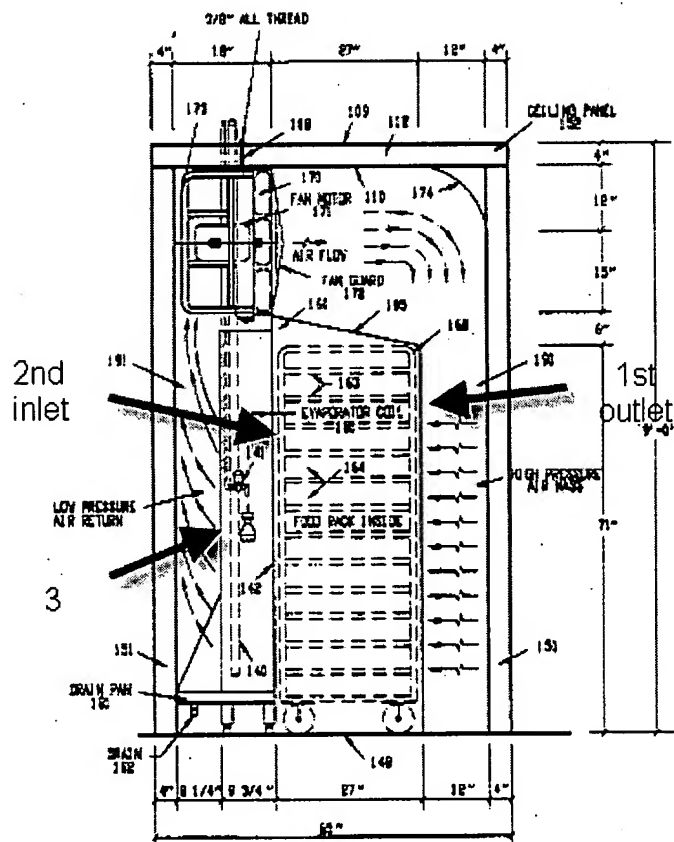


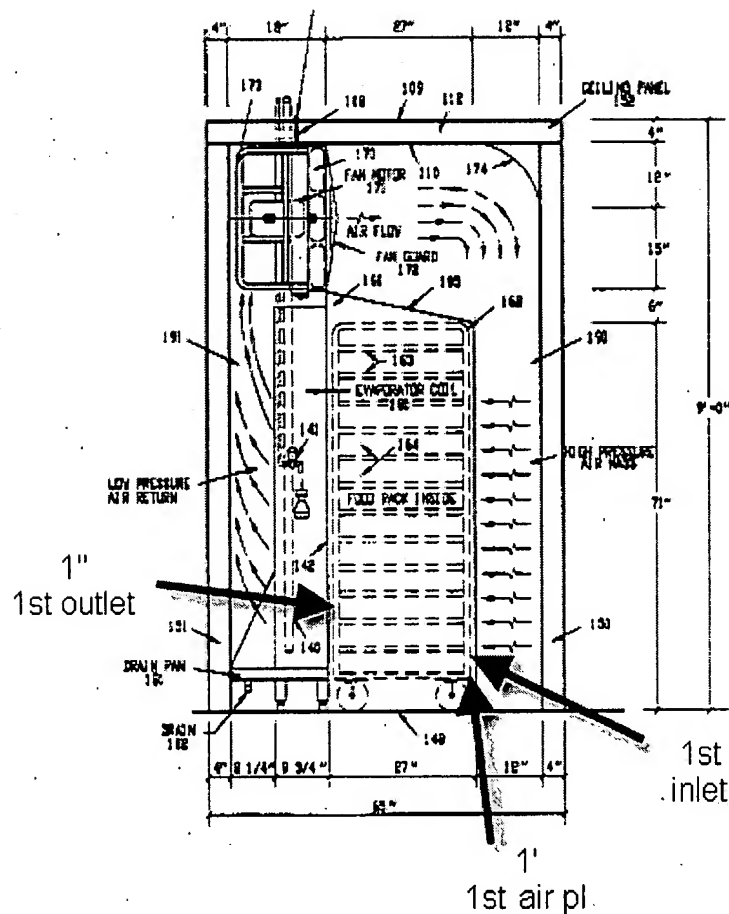
Ledbetter in view of Fujimoto teaches an invention as discussed above but is silent about an outer enclosure with external panels around the cabinet, an air conditioner between the cabinet and outer enclosure.

Applicant's admitted prior art (fig. 1) teaches the outer enclosure 4, 3, 5 with external panel 7 and 2, and air conditioner 16 between outer enclosure and the cabinet.

It would have been obvious to one of ordinary skill in the art to have the Ledbetter in view of Fujimoto apparatus within Applicant's admitted prior art enclosure and air conditioner in order to provide ventilation of the equipment inside the cabinet (spec. page 6, ll. 13-34 through page 8, ll. 1-27).

16. Examiner marked originally unmarked elements with darkened arrows for clarification.





(Alternatively fig. 4 of Ledbetter)

### ***Response to Arguments***

Applicant's arguments filed 5/21/2007 have been fully considered but they are not persuasive.

In response to applicant's argument about recited "a data center system", claim 52, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably

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distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this case the applied prior art is the same field of endeavor as applicant (cooling the equipment), and therefore is capable to serve in the data center.

Regarding the applicant's argument that that the heat exchanger/evaporator coil 180 and the equipment 163 are disposed in the same chamber, the examiner disagrees; because the figure 4, of Ledbetter, shows that divider wall 160 divides the the heat exchange chamber (on the left from wall 160) from the equipment chamber (on the right from wall 160).

Regarding the recitation that the first inlet at least partially vertically overlaps with the first plenum, it is clear from the figure 4 of the Ledbetter, that vertical opening/first inlet 172 at least partially vertically overlaps first plenum 190 which starts from fan 170 and ends when entering the elements 163 and 164 (originally shows on figure 4 with darkened arrows).

The examiner also noted that the applicant has not separately argued against references: Fujimoto 5,952,842; Jones 6,104,003; Ward 3,387,648, Rose 6,302,147 and applicant's admitted prior art. Accordingly those references are considered to properly show that for what they were cited, as discussed above.

Therefore the claimed invention is not distinct from applied prior art.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helena Kosanovic whose telephone number is (571)272-9059. The examiner can normally be reached on 8:30-5:00, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on 571-272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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